

What is claimed is:

1. A method for fabricating an optocoupler, the method comprising:
disposing a shield on a photodiode, wherein the shield is configured to prevent electrical
fields from reaching the photodiode, and wherein the shield includes one or more apertures
through which light can pass to the photodiode; and
enclosing a light emitting diode with the photodiode and the shield inside a device
package such that light generated by the light emitting diode travels through an inner space
defined by the device package to the photodiode for detection.
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2. The method of claim 1, further comprising:
fabricating the photodiode in a semiconductor structure.
3. The method of claim 2, wherein:
15 disposing the shield on the photodiode includes depositing one or more electrically
conductive elements over a portion of a surface of the semiconductor structure.
4. The method of claim 3, wherein:
depositing one or more electrically conductive elements includes depositing one or more
20 conductive materials over a portion of the surface of the semiconductor structure, wherein the
conductive materials include one or more of aluminum, copper, gold, silver, polysilicon, and a
silicide.
5. The method of claim 3, wherein:
25 depositing one or more electrically conductive elements includes depositing the
electrically conductive elements as a portion of a metallic interconnect layer.
6. The method of claim 3, wherein:

depositing one or more electrically conductive elements includes depositing a conductive layer having a thickness of about 100 Å to about 20,000 Å.

7. The method of claim 3, wherein:

5 depositing one or more electrically conductive elements includes depositing electrically conductive elements having a line width that is between about 0.2 µm and about 1 µm.

8. The method of claim 1, wherein:

10 disposing a shield on a photodiode includes disposing a shield including electrically conductive elements that define a grid, a series of parallel lines, concentric circles, or a spiral.

9. The method of claim 1, wherein the device package includes electric leads, the method further comprising:

15 electrically connecting the photodiode or the light emitting diode to the electric leads of the device package.

10. A method for operating an optocoupler, the method comprising:

converting an input electric signal into light using a light emitting diode enclosed inside a device package;

20 transmitting the light inside an inner space defined by the device package from the light emitting diode through one or more apertures in a shield to a photodiode enclosed inside the device package; and

converting the transmitted light into an output electric signal using the photodiode.

25 11. The method of claim 10, wherein the photodiode is included in a semiconductor structure.

12. The method of claim 11, wherein:

transmitting light through one or more apertures in a shield includes transmitting light through one or more apertures in a shield that includes one or more electrically-conductive elements deposited over a portion of a surface of the semiconductor structure.

5 13. The method of claim 11, wherein:

transmitting light through one or more apertures in a shield includes transmitting light through one or more apertures in a shield that includes electrically conductive elements in an interconnect layer of the semiconductor structure.

10 14. The method of claim 10, wherein:

transmitting light through one or more apertures in a shield includes transmitting light through one or more apertures in a shield including electrically conductive elements that define a grid, a series of parallel lines, concentric circles, or a spiral.

15 15. The method of claim 10, further comprising:

using the shield to terminate electrical fields from the light emitting diode before reaching the photodiode.

16. The method of claim 15, wherein:

20 using the shield to terminate the electrical fields includes connecting the shield to a potential source.

17. The method of claim 16, wherein:

25 connecting the shield to a potential source includes connecting the shield to ground potential.

18. The method of claim 10, further comprising:

receiving the input electric signal through an electric lead of the device package.